These assumptions drive the Kagan economic harm models and, when combined with definitions of, and assumptions about, the cost and revenue structures of the affected firms and their reactions to market entry, they strictly determine the results. Given the assumptions and the laws of algebra, no other results are possible. If the assumptions are relaxed, or replaced by ones that more nearly reflect real world conditions, the harms evaporate and are largely replaced by public interest benefits.

ASSUMPTION ONE. DARS' ECONOMIC IMPACT ON BROADCASTERS EQUATES TO IMPACT ON THE PUBLIC INTEREST. The KMA analysis nowhere states this proposition, but it is clearly implied by both the structure, content and conclusions of the analysis. There is no denying that the introduction of DARS will have an unsettling effect on traditional radio broadcast stations. Competition from new technologies, DARS and others, will no doubt create economic stress and financial pressure for radio broadcast incumbents, just as it has in other sectors. That's why they call it competition -- a rivalry for the favor and patronage of consumers.

A very important measure of the success and value of competition from new entry is the number of consumers who are made better off by the opportunity to choose from a more diverse set of services and who do in fact choose to take advantage of the opportunity. Thus, in the first instance, competitive entry and the introduction of new services adds to total economic welfare, and advances the public interest, in the measure of the number of consumers who choose the new service. These positive effects are nowhere mentioned or accounted for in the Kagan models.

It would be ironic indeed if opponents of competition and reliance on market forces are successful in convincing the Commission to use the number of consumers who choose to increase their welfare by purchasing new services from DARS providers as an index of harm to the public interest. Yet, that is exactly what opponents to new entry and increased market competition both argue and assume. But, the assumption that DARS creates no value is rendered false by the findings of NAB's own research and reported in its submissions in this proceeding, as is discussed in the next section.

ASSUMPTION TWO. RADIO WILL LOSE 5%, 10% OR 15% OF ITS AUDIENCE AND REVENUES TO DARS. Audience "fragmentation" and revenue loss assumptions are critical to all three Economic Harm cases examined by KMA.[15] DARS will compete with traditional radio and will likely divert some listeners for some parts of the day from their customary listening patterns. Nobody has a completely

[15] The assumption of revenue diversion is also a key component of the small community impact studies. It is no more valid there, and indeed it is likely to be less so according to NAB survey results. The relevance of the assumption for small community stations and related matters is discussed in greater depth in Section IV below.

reliable estimate of either the future size of the DARS listening audience (number of households, individuals or minutes per day), or the proportion of that audience that will come from existing radio listening audiences.

Potential DARS providers have made public their estimates of the number of future subscribers. But, if the history of past new startups is prologue, these are probably wide of the mark. And, there is no way of knowing how many of these projected new subscribers will be diverted from listening to conventional radio, and in what measure (one minute? one hour? three hours? per day? per week?). It is not unreasonable to presume that much of the audience for DARS will not be diverted from radio at all. Rather, it is very likely that a large proportion of the DARS audience may come at the expense of services and products that already provide high quality audio service. There are several of these; including compact audio discs, audio tape, audio services provided by DirectTV, and cable digital audio services (with over 25 million subscribers).[16] Or, DARS might be an attractive alternative to other uses of leisure time (or work time) and not divert business from any audio service or product. The fact is nobody knows.[17]

There are, however, some clues about the potential interest of consumers in DARS and the extent to which DARS might divert listeners from traditional radio broadcasts. Some indications are provided in the results of a national survey of 1,000

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[16] We note parenthetically here that DARS opponents might have performed a study to show the impact of the introduction of these digital audio alternatives to analog radio audiences. I suspect, but can only suspect since no such study is available, that the effect has been negligible and reflects thereby fairly low substitutability between digital and analog services. We also note that the Commission has before it an historical record that includes both the claims of economic harm and financial disaster for broadcasters and a couple of decades of data to test those claims. Many of the issues in this proceeding mirror those debated at the Commission over two decades ago in the context of determination of rules to be applied to cable television operators. If the assumptions of economic harm models submitted by broadcasters then had been correct, there would be no television industry, or certainly only a substantially truncated one, in existence today. The Commission bought those broadcaster arguments then and deprived the American public of enormous entertainment value for several years and deferred the availability of more choice for even more years. The Commission has not been provided an adequate basis for making that same mistake again in the context of digital audio radio services.

[17] The broadcasters have been given a very difficult task here. Forecasting the effects of competition that will not materialize substantially for a decade is a very complicated undertaking. The distinguishing characteristics of the communications sector are growth and change. In ten years a lot can happen. Given the break-neck pace of technological change -- digitization, miniaturization, mobilization, acceleration, diversification, you name it -- in this sector, it is virtually impossible to anticipate either the technological state or the economic state that will prevail, and within which DARS effects will be realized, after the turn of the century. The policy implication of this uncertainty is clear though. The Commission has no basis in law or policy for simply stopping the introduction of technology, because its effects cannot be certainly forecast.

adults undertaken recently (June, 1995) by Opinion Research Corporation. The Opinion Research results have special significance in this proceeding because they are reported in a study done by the Research and Planning Department of the National Association of Broadcasters and submitted as evidence in this proceeding.[18]

The NAB reports the following results of the Opinion Research survey:

- "The average respondent reports listening to 21.0 hours of radio in a typical week."[19]

- "Overall, the average respondent would listen to 18.6 hours of DARS per week."[20]

- "Overall, with DARS, radio listening, on an hours-per-week basis would decline 11.6%."[21]

These NAB/Opinion Research findings illuminate two important economic welfare issues, namely, how much additional consumer welfare will DARS create; and, how much audience will DARS divert from traditional radio?

The responses indicate that the average citizen will listen to DARS about eighteen and a half hours per week, of which only two hours and a half (11.6% times 21 hours that the average respondent listens weekly to traditional radio) would be time diverted from listening to traditional radio. This implies that the other sixteen and a half hours of expected DARS listening from those surveyed would represent newly created radio entertainment -- that is, time diverted from other pursuits.[22]

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[18] See, Research and Planning Department; National Association of Broadcasters, "Estimating the Audience Diversion from Broadcast Radio by the Introduction of Satellite Digital Audio Service (DARS), Washington, D.C., July 1995, Attachment 5 of Comments of the National Association of Broadcasters, *In the Matter of Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band*, GEN Docket No. 90-357 (September 15, 1995), [Hereinafter, "NAB Audience Diversion Study."].

[19] "NAB Audience Diversion Study", p. 4.

[20] "NAB Audience Diversion Study", p. 10.

[21] "NAB Audience Diversion Study", p.10

[22] Thus, NAB's claim that the benefits of DARS are too few to justify the cost is refuted by the results of its own survey showing that for every minute of listening time diverted from traditional radio by DARS, a public dividend, measured by the amount of new listening minutes, of almost seven and half times that is created. NAB's conclusion that the benefits of DARS: "are, in the main, either non-

Thus, the NAB survey data imply that over 88% of DARS listening will be in addition to traditional radio and about 12% will be the result of what DARS opponents call "audience fragmentation". This implies a multiplier of about 8.5 to one, relating DARS listening minutes to the reduction in the number of minutes consumers spend listening to conventional radio.[23]

What does this imply for the KMA analysis of DARS-induced economic harm to radio broadcasters? First, it makes clear that the assumption of a one-to-one relationship between the growth of DARS and DARS audience and the decline of traditional radio audience and station revenue is simply wrong, and perhaps wrong by a by wide margin. The fact that the Opinion Research sample is large (1,000) and sampling error small (plus or minus 1%) gives considerable basis for confidence that DARS can grow rapidly and substantially without diverting substantial minutes from traditional radio, even under the worst case scenario constructed by KMA.[24]

The audience diversion assumptions of KMA are not unambiguously supported by the NAB reported results of the Opinion Research survey.[25] But, more importantly,

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existent, unrealistic or of minimal value in terms of numbers of people or of added choice." fails utterly in the face of its own survey results. The survey results show that benefits of new listening minutes do exist; they are realistic; and, they are of considerable value -- over seven and half times, on a minute per minute basis, the amount of value lost by reduced radio listening time. And, there is no reason to believe that a minute of radio listening has substantially more (by a factor of seven or more) value than a minute of new DARS listening.

[23] Another illuminating way to express the data is to relate the number of "new listening minutes" provoked by the introduction of DARS to the expected reduction in the number of minutes consumers devote to listening to traditional radio. This ratio is about 7.5 to 1 and focuses on the fact that most DARS listening will be the result of time diverted from pursuits other than listening to traditional radio. Thus, DARS is more properly regarded, perhaps, as a substitute for other forms of recreation -- audio- or nonaudio-related. Viewed either way, the responses sharply contest the assumption that equates minutes of DARS listening to minutes diverted from traditional radio.

[24] See also, Comments of Digital Satellite Broadcasting Company filed: *In the Matter of Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 Band*, FCC 95-229 (Released June 15, 1995) pp. 17-21, for a fuller accounting of the value-added by DARS, independently of any value created for consumers who prefer DARS and switch from existing commercial radio.

[25] NAB reports that only 20% of respondents indicated that they would listen to less radio if they had a CD quality alternative, yet listenership would decline by 11.6% "overall". If 80 percent of the listening public will not listen to radio less after introduction of DARS, this suggests a) substantial loyalty to the medium, and b) that those who do switch will do so dramatically. We should also note that only a portion of those who switch from traditional radio to a CD quality alternative, will go to satellite DARS. Many of them will switch to terrestrial DARS, if they are given the opportunity by commercial

the survey results call into serious question the KMA assumption that relative audience loss equates to relative revenue loss. While the NAB asserts that the proportion of revenue losses for stations will be greater than the proportion of audience losses, there is no proof of this conclusion anywhere in the survey. It is a casual, and self serving, inference made from data that can be interpreted to the contrary, with equal confidence, but which in any event are highly inconclusive.

ASSUMPTION THREE. DARS IMPACTS WILL BE REALIZED IMMEDIATELY. The KMA models share a common flaw with all the models, implicit or explicit, relied on by broadcasters in this proceeding. This flaw is the assumption, in essence, that "time stands still" and the impacts of DARS will be realized immediately, with no warning, on a flash cut basis. It is assumed that the effects of the introduction of DARS (only negative ones in the NAB analysis, but more on that below) will be fully and instantaneously realized.

Now, comparative static analysis -- that is comparing one state of an economic system to another without regard to the passage of time -- is frequently used in economic and business analysis. But, comparing one hypothetical market state with another ignores what transpires between the initial disturbance, in the this case the licensing of DARS, and the process and events leading up to the realization of any impacts. While, the process and events and time involved in moving from one equilibrium state to another can be ignored in the analysis of a wide range of economic problems and issues, ignoring the dynamic aspects of the introduction and diffusion of DARS is to fail to analyze the most important part of the problem. The effect of doing so is to exclude from the analysis important events and processes that will certainly influence the results.

Submissions in the first round of comments suggest several time lags. We suggested that there are regulatory lags, implementation lags and market penetration lags between now and the time DARS reaches any significant amount of market penetration. We relied on the diffusion other successful consumer electronics technologies that also required consumers to purchase new receiving equipment.[26]

It is unnecessary for the Commission to determine the precise time required for DARS to reach any particular penetration level, but it cannot ignore the fact that some

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broadcasters, and thereby add to the revenue streams of conventional broadcasters. Thus, to the extent that traditional broadcasters adapt to competition from satellite DARS, a significant portion of the 11.6 % decline in traditional listenership does not represent lost audience or revenue at all. Rather, it represents a switch from one station revenue stream (analog broadcast) to another (digital broadcast). And, the more aggressive the local station is in converting to digital and programming it in creative and competitive ways, the more of that revenue it can capture.

[26] See note 7, above, and references cited there.

considerable time will lapse before DARS will be introduced and be able, even in theory, to have any impact of the kinds described by opponents -- audience diversion, revenue loss, financial pressures, and the like. More importantly, it is imperative for the Commission to recognize that several intervening events are not only possible, but quite likely. And, that those events will influence substantially the ultimate impact of DARS on broadcasters. In fact these intervening influences may be so significant that they may very well offset most of the negative effects cited by opponents.

ASSUMPTION FOUR. THERE IS NO GROWTH IN THE INDUSTRY. The use of static models to analyze competitive impacts carries with it several implicit assumptions that bias the models' predictions of economic impacts in serious and predictable ways. A corollary of the assumption that DARS impacts will be immediately and universally realized is the opportunity it avails to ignore growth in broadcasters ability to sustain any competitive incursions from DARS.

By ignoring the time factor and analyzing economic impacts using published data, the KMA models and others used by DARS opponents presume that DARS impacts taking place a decade from now will be realized in yesterday's economic context. The assumption of such a "time warp" in the context of the dramatic technological change and economic growth now driving the industry's development is simply not acceptable.[27] The use of data from 1993 or 1991 to provide context for the analysis of DARS impacts likely to be realized a decade from now, under enormously different technological and market circumstances, is assured to, and does, yield nonsensical results.

Consider the following:

> "Over the last two years, radio advertising increased by $1.6 billion, $8.7 billion to $10.3 billion...Local radio advertising, the predominant component of the segment with 77.7 percent of the total, rose 9.0 percent...while national advertising increased 8.5 percent...Radio continues to be an attractive medium and should continue to benefit from the improved advertising environment. Consequently, we look for the pace of advertising growth to increase over the next five years, posting a 7.1 percent annual growth rate. By 1999, advertisers will spend an estimated $14.5 billion on radio...(emphasis added)[28]

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[27] We cannot emphasize enough the importance of this "time warp" infirmity of the models. It is tantamount to analyzing the effect of the introduction of the electric automobile in the horse and buggy era and without regard to the effects of the internal combustion engine.

[28] The Veronis, Suhler & Associates Communications Industry Forecast/Radio Broadcasting (July 1995), p. 124.

These numbers imply that from 1993 (the most recent year addressed in much of the KMA analysis) to 1999 annual revenue for the industry will grow by almost $6 billion. Projecting the 7.1% annual growth rate forward to the year 2004, when our best estimates suggest DARS will be in only one or two percent of US households, the radio industry will have nearly doubled in size.

These revenue growth numbers have even greater meaning for the present inquiry, if they are interpreted in the context of the additional financial "firepower" they will create. In another publication, Kagan Associates have given a clearer picture of the industry's financial strengthen and outlook. Using the standard measure of financial strength, Kagan reports:

> "Cash flow margins in radio are some of the highest in any media. [emphasis added] Duopoly has helped trim costs (and therefore boost margins) and so has good management....some stations operate in the 50% cash flow margin range and an elite few in the 60% range!...[L]arge station (net revenue = $8 mil. to $10 mil.) enjoyed an average 37% cash flow margin, a steady increase from 1991 to 1994....Meanwhile, medium-sized stations (net rev. = $3 mil. to $5 mil.) had 30% cash flow margins in 1994, on par with a high [reached] more than a decade ago. The trend line was still going up into 1995. Small stations (net rev. = $250K to $750K) average cash flow margin more than doubled from 1990's 7% to 1994's 17% high.[29]

There are several ways to characterize these data to depict the growth in the industry's economic strength. In the following table we have used the Veronis Suhler growth rates and the Kagan cash flow margins to project an hypothetical radio broadcasting industry revenue and cash flow stream for the next ten years. Two key assumptions drive the numbers in the table, and we want those to be very explicit. The first assumption is that the Veronis Suhler forecast for the industry's revenue growth for the next five years will obtain for the entire decade following 1994. Thus,

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[29] Kagan's Radio Deal Record (1995), p. 5. We call attention to the context of the observation by Kagan that "Cash flow margins in radio are some of the highest in any media." In our earlier paper we showed that growth and cash flow in the media industries are among the highest in the entire economy. (See "Darby Radio Analysis", Table 2 and accompanying discussion.) Thus, radio growth tops the chart in the top sector of the U.S. economy.

TABLE 2

PRO FORMA REVENUE AND CASH FLOW STREAMS U.S. RADIO BROADCASTING INDUSTRY

($ Billions)

YEAR	REVENUE	CASH FLOW
1994	$ 10.30	$ 3.09
1995	11.03	3.31
1996	11.81	3.54
1997	12.65	3.80
1998	13.55	4.07
1999	14.51	4.35
2000	15.54	4.66
2001	16.65	4.99
2002	17.83	5.35
2003	19.10	5.73
2004	20.45	6.14
TOTAL 1994-2004	$163.43	$49.03

Source: Calculated from data provided by Veronis, Suhler & Associates and Paul Kagan Associates.

industry revenue shown in the table is the result of 7.1% compound annual growth.[30] Secondly, the table uses the Kagan estimate of 30% current cash flow margins for medium-sized stations to generate pro forma cash flows.

The last row of the table suggests that the industry will generate nearly 50 billion in cash over the next decade. That amounts to approximately five times last years' total industry revenue. It also represents awesome financial capacity to prepare for DARS competition.[31]

ASSUMPTION FIVE. BROADCASTERS WILL MOUNT NO COMPETITIVE RESPONSE AND DEVELOP NO COMPLEMENTARY REVENUE STREAMS. As impressive as the foregoing table is in its characterization of broadcasters' ability to generate revenue and cash, it is conservative in the sense that it is based on the assumption that broadcasters will develop no supplemental revenue streams in the future, or otherwise mount a competitive response to protect revenue streams and cash flow. We have undertaken no analyses of the potential size of such revenue streams from new services, but we assume that such studies are available to competent management, even if, understandably, on a proprietary basis. But a full reckoning of the economic impact of DARS must surely include some allowances for such revenue. Indeed, the Commission specifically requested that broadcasters provide such information when it stated:

> "We seek comment on innovative measures terrestrial radio stations may take to respond to competition from satellite DARS, particularly implementing digital transmission techniques in their own service

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[30] We hasten to point out, as others have in this proceeding, that this growth rate is nominal, not real growth, and includes, accordingly, changes in the value of the dollar. In all our comparisons and time series here and in our earlier paper, we have followed convention and used projections of growth in dollar denominated revenues. We are well aware of the prospect for inflation, but note that 7.1% adjusted for a three or four percent expected inflation rate is still a very substantial real growth rate and on the order of twice the rate expected for the overall U.S. economy.

[31] How that cash will be used is of course up to the managers and owners of the assets. It might be used to pay down debt; or be leveraged up to underwrite additional acquisitions; or used to acquire or produce new programming; or to upgrade current facilities to permit digital transmissions; or, to create new digital broadcasting revenue streams; or, in any of a variety of other ways. The point here is not to commend any particular use of cash, but merely to point out that an enormous amount of discretionary cash is likely to be accumulated and that its use will have effects on the impact of DARS introduction too important to simply ignore, as is done by the Kagan scenarios. We hasten to point out also that these pro forma cash flow projections should help the Commission understand the basis for the feverish radio station license acquisition activity that has driven station values up so dramatically in recent years. Radio station investors are expressing their awareness of the growth of cash in these licenses by paying increasing multiples (of both revenue streams and cash flows) in radio license deals. [See "Darby Radio Analysis", Table 6 and the accompanying discussion around p. 14].

offerings, and the impact of these measures on terrestrial radio's ability to compete."[32]

What effect will DARS by satellite have in a market where terrestrial stations have taken the initiative to create the ability to broadcast digital signals and supporting programs? That is certainly a relevant question, in view of the technological options almost assured to be available to broadcasters by the time satellite DARS begins to penetrate households. Yet, it is a question not asked by any of the NAB surveyors or analyzed in any of the KMA scenarios. The question also highlights a broader difficulty with the Kagan analysis -- the assumption that broadcasters will depart from their creative and aggressive past history, and mount no competitive response to the introduction of new technology.[33]

It is not credible to suppose that the radio broadcasters will do nothing in the next ten years to prepare for and to confront DARS and other new entertainment technologies; or that it will not use the substantial "war chest of cash" it will accumulate in ways to compete effectively with DARS and to protect its share of advertiser expenditures. Such a response would be an unprecedented departure from the industry's aggressive and adaptive record of past behavior. Astute managers in the industry are, no doubt, making plans now, as they have been doing for some years, to protect their markets from DARS; from cable radio; from digital audio competition from television broadcasters; from each other; and, from other competing technologies. Business planners in well-managed radio companies will devise the means to compete aggressively in the digital audio market. Some will be more successful than others, but it is nonsense to suppose, as the Kagan study and the NAB brief does, that they will simply not try.[34]

ASSUMPTION SIX. COST REDUCTIONS, EXCEPT IN PROGRAMMING, ARE NOT POSSIBLE. Related to the assumption that broadcasters will not mount a competitive response to DARS is the almost universal assumption among DARS

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[32] DARS NPRM, p. 7.

[33] DARS opponents would have the Commission believe that radio broadcasters will be frozen, deerlike, by the bright warning signals of a rapidly approaching threat, and simply stand still, motionless, waiting to be destroyed.

[34] We call attention to the previous discussion of the NAB's own survey report that the average respondent would listen to 18.6 hours per week of digital radio per week, while diverting only a relatively small part (11.6%) of that from traditional radio. Thus, the digital audio market will create nearly 16.5 new hours of new radio listening -- or nearly eighty percent of the current market (reported by NAB to be 21.0 hours per week of listening). We are asked to believe that competent management, armed with substantial amounts of cash, will ignore the opportunities afforded by an eighty percent increase in current demand. (See discussion of Assumption Two and accompanying notes above.)

opponents and the studies they have submitted to the effect that cost reductions are not possible, except for those stemming from cutbacks in the quality and diversity of programming, especially programming of a local or community nature.

It is puzzling to be asked to suppose that broadcasters will generally not respond to DARS, but when they do, they will do so by cutting back on the quality of the services they provide. Radio program services are perceived as "free" by consumers, even though they pay in prices for the goods and services they buy that are higher because advertising costs are incorporated in them. Since consumers do not pay directly for radio program services, broadcasters cannot reduce, directly, the prices consumers pay. Thus, broadcasters competitive tools in the end user market are pretty much limited to varying the quality and diversity of the program services they provide. That, indeed, has been the industry's most effective historical tool, as it has successfully adjusted to past technological and market changes.

The burden of course is on broadcasters to show why no other cost reductions are possible. Only they have the data required to make such a showing. The National Association of Broadcasters historically has published financial reports including selected data pertaining to station operations. The most recent year for which those data are available is 1991. The 1991 data are now almost four years old and do not capture the dramatic revenue growth, cash flow growth and earnings growth of the past four years. Nor do they reveal the likely changes in station cost structures as markets and firms have expanded.[35] Thus, we are hardpressed to adduce detailed and conclusive factual cost information to refute the claims of broadcasters that there is simply no place in their operations to cut costs other than in ways that will diminish program diversity and quality.[36]

Our initial, and by no means completed, analysis of the available data indicates, not surprisingly, that interest charges have grown dramatically as a percentage of revenue in recent years, thereby reflecting the increased debt used to underwrite station acquisitions. The increased leverage is reflected on station balance sheets and in higher debt service charges against current income. A simple comparison of the ratio of stations' interest expenses to their total expenses for 1986 and 1990 indicates very substantial proportional increases. That ratio increased from 5% to 8%;

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[35] And, of course, owing to the general economic recession and distress in the retailing sector, 1991 is an outlier and not very useful as a basis for comparison in any event.

[36] The Commission should be skeptical and not simply accept those assertions, but should require the industry to produce more recent data relevant to the claim and to make clear the nature of the analysis supporting such claims. In view of the widespread expense cut backs in all parts of the economy attributable to increasing "economic value-added", "business process re-engineering", "downsizing", "rightsizing" and plain old "economizing", the Commission should insist on proof that radio broadcasters have no room to become more efficient without cutting highly valued programming.

from 3% to 5%; from 7% to 10%; and, from 5% to 9% for Daytime AM stations, Fulltime AM stations, AM/FM stations, and FM stations, respectively. As measured by

TABLE 3

Radio Station Programming and Overhead Expense Structure

(% of Total Station Expenses for Selected Years)

	Program and Production	General and Administrative
Daytime AM Stations		
1986	20.1%	37.7%
1990	20.9	48.0
1991	23.6	45.3
Fulltime AM Stations		
1986	25.2	31.4
1990	27.5	34.3
1991	22.7	38.7
AM/FM Stations		
1986	20.8	39.3
1990	20.5	43.9
1991	21.4	42.2
FM Stations		
1986	19.3	38.0
1990	19.8	43.4
1991	19.7	43.3

Source: NAB Radio Financial Reports; Calculated for Selected Years

changes in these ratios, the debt service burden increased during the late eighties by more than 30% for all stations. Significantly, this does not reflect any additional interest burden of debt financed transactions that have taken place since the end of 1990. Nor does it reflect any debt service costs that might be buried in the "Corporate Allocation Charge" component of station expenses, as reported in NAB Radio Station Financial Data. As limited as they are, however, the data do reflect a possible source of expense savings in the future, if the stations opt to use cash to pay down debt.[37]

Further, according to NAB data summarized in TABLE 3, General and Administrative expenses have in recent years been consistently twice as large as programming and production expenses, thereby at least suggesting the possibility that overhead might be cut substantially before diluting program quality and diversity and undercutting the stations' competitiveness in the marketplace by cutting back programming expenses. The data also give the lie to persistent claims by broadcaster proponents that stations have been responding to increasing competition in recent years by cutting back on programming expenses. To the contrary, the share of total station expenses going to program and production activities has been uniform across stations and remarkably stable over the time period covered by the table.

In short, then, broadcasters' claims that competition from DARS will force calamitous reductions in program diversity and program options is not supported by any data or analysis submitted in this proceeding. Moreover, our preliminary analysis of old NAB data indicates that significant reductions in nonprogramming expenses are possible, and the possibility quite likely to be explored by successful companies, even before consideration of program dilution.

III. D KMA --Fragmentation Effects by Station Size.

The first KMA analysis of the effect of satellite DARS focuses on potential impacts on stations. But, the nature of the analysis is instructive, for on closer examination it is not analysis at all. Rather, it is a simple arithmetic exercise using illustrative values for station audience shares, power ratios and cash flow margins and assumed values for the effect of competition. The KMA fragmentation analysis is in all respects purely an hypothetical exercise accompanied by neither claims, nor evidence, of any relationship to actual operating conditions of stations, potential market responses of consumers to the introduction of DARS, station management

[37] We noted earlier that industry will generate substantial free cash flow in the next few years, and that such would be used for purposes determined by management discretion. Thus, if radio interests were to choose to do so, they could use cash from operations to reduce debt and strengthen balance sheets, thereby reducing the burden of interest charges and staving off the imperative, such as it might otherwise be, to cut program diversity and quality.

responses to competition or the effects of market growth and diversification over time. The model is just one big conglomerated and compounded assumption.

KMA illustrates three levels of hypothetical audience loss (5%, 10% and 15%) resulting from DARS-induced market "fragmentation" for three hypothetical stations (power ratios of 1.4, 1.15, and .95) in a hypothetical mid-sized (assumed total radio advertising revenues of $25 million) radio market. Station "power" ratings are hypothesized; cost of sales are assumed to be a fixed proportion of total sales; cash flow margins are arbitrarily set at 33%, 20% and 10% for top-, mid- and low-rated stations, respectively; and, fixed expenses are assumed to be at levels just sufficient to generate the assumed cash flow margins.[38]

On the basis of these assumed relationships, hypothetical values and supposed consumer and station manager responses to the introduction of DARS, KMA concludes:

> "...a top-rated station's cash flow could decline 11 to 32%, depending on the level of audience fragmentation. For a mid-rated station with lower cash flow margins, the cash

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[38] The basic "model" can be written simply as cash flow (E) is equal to station Revenue (R) minus station costs (C). That is,

$$E = R-C$$

where station revenue (R) equals the station audience share (S) times its power ratio (P) times the total market ($25 million). That is,

$$R = \$25,000,000\ (P)(S)$$

Cost is defined as the sum of selling expense, which are 30% of sales, and "fixed expenses" which assumed invariant with respect to changes in sales and just sufficient to generate the assumed cash flow margins before the introduction of DARS competition. That is,

$$C = (R)(.3) + \$1,733,000 \text{ for a large station}$$
$$C = (R)(.3) + \$1,150,000 \text{ for a mid-size station, and}$$
$$C = (R)(.3) + \$427,000 \text{ for a small station}$$

The implicit side condition is that the cash flow margin (1 minus C/R) be equal to .33, .20 and .10 for the large, midsized and small station respectively. We also call attention again to the fact that revenue is not proportional to audience, as is widely assumed elsewhere by Kagan and the NAB analysis.

The model is strictly determined by the assumed relationships and endogenous variables. That is the sense in which the predictions are indistinguishable from assumptions.

> flow loss could be 18% to 52% due to audience fragmentation. Low-rated stations, of course, are the most susceptible to audience fragmentation, potentially losing 35% to 105% of their cash flow.[39] (Emphasis in original.)

What is the probative value of this exercise? It is notable that in writing up the results, KMA is quite careful in the way the models' conclusions are expressed. In keeping with the conditional nature of the model, Kagan does not forecast that cash flow will be altered by the introduction of DARS -- only that it could be altered and that "cash flow could decline"; "cash flow loss could be..."; and, that some stations might "potentially" lose large percentages of cash flow.

It is not of course possible to prove a negative, and we will not undertake here to try to establish that the potential outcomes identified by Kagan will not transpire. But, that is not the issue. The issue is the likelihood of this and other disaster scenarios. That likelihood is not estimated or even addressed by KMA.

In an uncertain world, countless events of a disastrous economic nature are possible, but economic behavior and public policy are generally driven by probabilities, not possibilities. Thus, it is not enough to know what might happen. In principle anything might happen, but it is important also to understand the likelihood of disastrous events.[40] The benefits of policies designed to reduce the risk of disaster to zero by keeping bad things from happening must be offset by the costs of foregoing the good things that are precluded by the policy.[41]

Thus, it is very important to inquire first about the probability of the "disaster scenario" in the KMA case analysis and, secondly, about the likelihood of alternative

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[39] KMA, p. 1.

[40] Economists, statisticians and other social scientists regard the importance of an uncertain future event as a function of the probability of the event times its value (or cost) if does occur. So, an event with a 1 in 100 chance of happening (probability = .01) and a value (cost) of $100 if it transpires can be assigned a prospective value (cost) of $1.00. Such a calculation permits comparison of the value of that event with another uncertain event, such as one with probability of 5 in one hundred and a value of $10.00 if it occurs, i.e., $2.00. The point is that value and cost of uncertain future events must consider the likelihood of the event or outcome.

[41] For an interesting discussion of the policy implications of trying to make sure bad things do not happen see Aaron Wildavsky, "Riskless Society", The Fortune Encyclopedia of Economics, edited by David R. Henderson, Warner Books, New York, 1993. Health and safety concerns provide the context for the analysis there, but the point is that attempts to reduce risk of any kind to zero, or to guarantee against any possible outcome, is a costly proposition. The clear implication is that policy requires balancing all kinds of risks and opportunities and resisting the temptation to prevent all possible, but improbable, events with negative consequences.

scenarios. As documented earlier and in detail in this paper, the KMA disaster scenarios depend very critically on the validity of certain key assumptions. The dependence of the results on these assumptions is clearcut and unequivocal. If the key assumptions driving the results of the model are demonstrably false or unlikely to hold, logic requires rejection.

Thus, the key drivers of the results derived by KMA are not apparent from the text of its presentation and discussion of the model. The key assumptions of the model are for the most part implicit and simply not addressed. Each of the six assumptions discussed above is critical to determining the likelihood of the economic harm to broadcasters (manifest in reduced cash flow) predicted by KMA to result from the introduction of DARS.[42] If those assumptions fail, this and the following KMA models fail to capture the likely effects of DARS.

III. E KMA -- Fragmentation Effects by Market Size

To determine the effects of increased DARS competition in markets of various sizes, KMA uses a somewhat different, but similarly flawed, approach. This second "fragmentation" study uses a different basis for its assumed fragmentation of audience and resulting diminution of station revenues, cash flow and earnings. Although the basis of the assumed fragmentation is different, it is by no means more reliable; more grounded in economic reality; nor, more likely to transpire than the earlier approach. In short, the Commission will not find this model very reliable in assessing the likely impact of DARS, as opposed to assumed effects. But, let us be specific.

This "fragmentation" study is based on selective use of results in selected markets of historic increases in the number of FM stations, following the Commission's decision in Docket 80-90 to create numerous new FM stations by permitting new FM station "Drop-ins" in previously unassigned radio spectrum. The KMA approach here is first to identify markets: "that saw a substantial increase in new signals."[43] Then KMA simply divided the FM audience by the number of FM stations, a process that "resulted in an average share per FM station." KMA then apportioned its estimated gross revenue per market to stations in accordance with this estimated share, thereby deriving an estimated average revenue per FM station in different markets before and after the increased competition from "drop-ins".

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[42] While this analysis follows the KMA approach and focuses only on economic impacts on radio broadcasters, we hasten to point out and emphasize the Commission's admonition that the public interest, not broadcast station interest, is the proper point of reference for evaluating the effects of DARS. Thus, while KMA focuses exclusively on the effects on broadcasters, the Commission has signalled its intention to look much more broadly.

[43] KMA, p. 14.

Thus, this KMA analysis compares revenue per station in different (large, medium and small) markets in a year (1985) before the new stations came on the air with revenue per station in those markets in a year (1993) after the stations were "dropped in" the markets. Now, common sense and arithmetic tells us that if the number of stations grew faster than the market over that interval, we should expect a decline in average revenue per station. And, since the sample was chosen to include only markets where there was "a substantial increase in new signals", we should not be surprised that the number of stations did indeed grow faster than the total market in all the markets included in the sample; and, that revenue per station was below what it would have been if no new ones had been added. And, moreover, KMA goes on to show that cash flow for those station was also less than it would have been if no new stations had come on the air.[44]

Thus KMA has proved yet another way that if you reduce station revenue by some arbitrary amount and hold operating margins constant, that cash flow and earnings will be less than they would have been without the reduction in station revenue. While we can and should readily accept this mathematical truth, the Commission is left to fill in a very big blank in the analysis; namely, what does this exercise have to do with the likely effect of DARS on the public interest? KMA and NAB provide the Commission no guidance on that question.

III. F KMA -- Loss of national revenues

The third KMA analysis resembles in method and arithmetic the first two, but uses a different assumption to drive the revenue and cash flow losses. This time, the revenue loss driver is derived from statements about expected national advertising billings of a proposed advertiser supported DARS provider (Primosphere). Without explanation, without any other apparent basis and in clear contradiction of the Opinion Research survey results reported by NAB to the effect that only 11.6% of the time consumers expected to listen to DARS would be diverted from terrestrial radio listening, KMA simply assumes that all national advertising revenue that might be captured by Primosphere would be diverted from terrestrial radio. It then performed the familiar decremental analysis on station revenue and cash flow, using fixed cash

[44] There are some interesting implications of the "pro forma" reduction in cash flow stemming from the increase in the number of FM stations reported by KMA in TABLE 4. They report that the "Implied Lost Cash Flow" from their analysis is a reduction of 51.7%, 52.1% and 121.8%, respectively, for large (mkt.1-44), medium (mkt. 456-136) and small (137-200) market segments. Now, unless we have misunderstood the analysis, this implies that cash flows would have been twice as large as they were in 1993, but for the "drop-ins". This is indeed an impressive result, in view of the fact that 1993 cash flow margins reported by Kagan were -- even with the "drop-ins" -- 34%, 25%, and 11% for large, medium and small stations, respectively. (See, "Darby Radio Analysis", Table 5 and companion text.) The Kagan analysis suggests further, if you take it literally, that small stations had negative cash flow in 1993, since they lost over 121% of their 1985 cash flows!!

flow margins, and finding again substantial economic harm to broadcasters and, therefore, to the public interest.

III. G Conclusion -- KMA Models and Analyses

Based on the foregoing analysis, the Commission should find that these models, the discussion in the NAB brief based on them and any contingent policy recommendations do not meet the evidentiary standards spelled out clearly and in detail in the NPRM. These models are not remotely sufficient to determine the public interest in the introduction of DARS. They rely on demonstrably incorrect assumptions. Several important model inputs are contradicted by data available to NAB and in some cases published elsewhere by Kagan.

IV. Impact of DARS on Small Communities

Opponents have made much of their claim that the introduction of DARS will be destructive of radio in small communities. And, the Commission solicited comment specifically on the impact of DARS on radio stations in small markets.

The National Association of Broadcasters argues that small market radio is especially vulnerable to DARS, even though their own survey results indicate that diversion of radio listeners to DARS will be substantially greater (more than a third greater) in "Metro" areas than in "non-Metro" areas.[45] They comment: "Small market stations are much more vulnerable than large market stations in that they need a much bigger share of a much smaller audience to survive and in that their audience potential and thus revenue potential is much smaller to begin with."[46] While this conclusion is unambiguous, its rationale is neither compelling, nor even clear. Indeed, if we understand the statement, it applies with equal force to all business undertakings in small communities.

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[45] "NAB Audience Diversion", p. 10.

[46] "NAB Brief", p. 36. This statement is rather elliptical and its economic content is not easily extracted. In fact, we are not sure what it means beyond the observation that small communities beget small markets and that small markets can support fewer, and smaller, competitors than large markets. The footnote accompanying it (Note 85, "NAB Brief", p. 36) offered in support of the special "vulnerability" of small market radio is not conclusive, nor even relevant to the claim. There is no denying that large market radio stations generate higher acquisition values than small market stations, but the systematic differential reflects differences in the size of markets addressable by the stations' signals, not any fundamental differences in the economic viability or sustainability of large versus small market radio. Large car dealerships, large banks and large retail outlets in large communities fetch higher acquisition values than their small community counterparts for the same reason.

Notwithstanding the persistent claims of NAB, there is nothing inherent in either the technology or the economics of radio to suggest that it faces more difficulties than small community business in general, or that it is especially vulnerable to DARS. The limited evidence adduced by NAB on the point is spotty and full of contradictions. On balance it is not persuasive and, indeed, supports very different propositions about the circumstances of small market radio. If the Commission wants conclusive, reliable or even modestly compelling evidence of impending danger to small market radio from DARS, it will have to look to sources other than the NAB's brief and supporting studies.

The NAB solicited a survey of small market radio stations in an effort to support its claim of harm to small market stations from DARS. Unfortunately for the Commission's expectation that the industry might contribute dispositive evidence on the matter of DARS and small market radio, the responses will not bear much in the way of critical scrutiny.

First of all, it is notable that stations in eight of the seventeen markets surveyed did not generate "sufficient responses" to permit analysis. Given that three responses were apparently sufficient to permit analysis and in view of the likely bias in the remaining "self-selected" sample, the Commission is left with the basis for nagging suspicions about the representativeness of the results reported. Even aside from its biases, the sample yields date so contradictory and ambiguous that they have little if any probative value on the question of DARS' impacts in small communities.

The accounting firm questionnaire apparently asked respondents to calculate the impact on net income of a 10% revenue reduction resulting, respondents were apparently to assume, from the "onset of new competitive media".[47] First, there is no basis, whatsoever, for assuming that DARS will reduce either audience or revenue in rural areas by 10%. And, to the extent that audiences for traditional radio are reduced by DARS, it must be because consumers prefer it. Consumer switching is, of course, generally a very reliable indicator of improved consumer welfare.

Furthermore, as discussed at length above, this type of "what if" simulation of the effect of hypothetical station revenue reductions presumed to follow from the introduction of DARS is based on an extensive array of highly improbable assumptions. Thus, any policy conclusions from the survey must reflect the extent that the results reported neglect very important competitive adjustments related to the time lags involved; the ability of stations to plan and respond to new competition by adjusting operations; the ability of stations to modify formats or to create new revenue streams; to consolidate; or, otherwise to adapt their businesses in ways consistent

[47] "NAB Brief", Attachment 14, Letter to Mr. Mark Fratrik (NAB) from Miller, Kaplan, Arase & Co. (Certified Public Accountants), p. 1 [Hereinafter, MKA letter].

with rational responses to new competition. In this regard, it is simply not enough to suppose that these firms, albeit small ones, are perfectly adapted to the appearance of new competition and that there is nothing left to be done.

From the limited and very selective information reported in the MKA letter in Appendix 5 in the NAB brief, it is impossible to determine or to verify important economic conditions in the relevant markets, or for the firms, being surveyed. As always in this industry, measures of accounting profits are suspect and subject to wide variations for given economic profitability. How much value is being taken above the line? How much value is attributable to trade-outs and barter and therefore not counted as revenue? What is the dynamic context of these "market snapshots"? Is the market growing? Is the number of stations increasing or decreasing? What is happening to formats? Are there persistent "winners" in the market? How long have distressed firms been that way and what are they doing to adapt? The NAB comments and the MKA letter shed no light on these and related questions, notwithstanding the Commission's plea for the evidentiary wherewithal necessary to permit it to analyze the separable effects of normal market conditions from the likely effects of DARS.[48]

The Commission noted that in the course of normal market-driven economic development some local broadcasters experience continuing losses.[49] The small market survey results confirm this observation. Indeed, the accounting results, to the extent they reflect economic reality, paint a picture of a market in serious disequilibrium and one in which remedial forces are very likely already in play. According the letter, 17 of the 35 responding operators report that they lost money in 1994.[50] While we have no way of knowing for how many years such losses have been incurred, they are surprising in view of the overall health of the industry and suggest that some market adjustment -- cost cutting, consolidation, management or format changes, or something else -- will be required to bring the market back into equilibrium. And, given the apparent seriousness of some of the reported losses,

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[48] DARS NPRM, p. 7, para. 20.

[49] We hasten to point out, however, that the data cited by the Commission is for 1991, a clearly strange year in the overall trend of station profits resulting from the unlikely convergence of several economic forces -- general economic recession, transitional difficulties in retail sector and so forth.

[50] The high ratio of small firms (reported by accountants' survey) experiencing losses raises serious questions about the sample. Kagan's Deal Record reports that small stations in the $250K to $750K annual revenue range in 1994 enjoyed average cash flow margins averaging 17% and have been on an upward trend line since 1990. If Kagan is right and the mean cash flow margin for small stations is 17%, we must view with considerable distrust the results of a sample in which half the stations are losing money. The sample is clearly an outlier and not even the most passionate advocate can argue with a straight face that it is representative of small station economics today.

these normal market adjustments will occur well before the introduction of DARS.[51]

Serious disequilibrium in the markets surveyed is corroborated further by the fact that some stations in the same market are reportedly doing quite well. Consider Market E (as identified in the accountants' letter) with three stations reporting. Assuming these stations are representative of the entire local market in that community, it appears that the radio business is profitable when viewed in the aggregate. That is, the reported losses of two stations ($17,00 plus $29,000) are more than covered by the profits ($69,000) of the third, so that the market in the aggregate is generating significant positive accounting returns. Based on the average revenues reported, the profitable firm is earning over 33% on sales -- a margin of profit that would be envied even in a top ten market. Without more information one cannot predict what will happen, but this is clearly a market in disequilibrium and one in which corrective forces are now in play.

A similar situation prevails in market C, where the successful firm earned more than $106,000 on sales of $940,000 and enjoyed thereby a profit margin on sales in excess of 11%. The other two stations reported combined losses of $89,100, or substantially less than the earnings of the successful one. This to is a market in disequilibrium and one in which it is simply not possible to project the impact of increased competition, particularly if new entry is several years away and market penetration likely to be gradual after that.

Consider market A (as identified in the letter) with five stations. Four are now losing money and the fifth is "quite dominant", according to MKA, with earnings sufficient almost to offset completely the losses of the other four. Again, it is simply not clear what is happening in this market, but the Commission can safely conclude that the problems here will be resolved well before DARS becomes a factor.

There are similar anomalies in the data reported for the other markets, but they merely re-enforce a point that is already quite clear. The Commission recognized that the viability of radio stations is determined by a variety of factors and directed respondents to "establish a credible connection between DARS competition and any

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[51] It is also important to note in the present context that consolidation, even though it may be inevitable, need not diminish community programming. To the extent that the community values such programming, it will be provided by reorganized and recapitalized stations. As indicated elsewhere in these comments, there is no evidence in this proceeding to suggest that such programming is provided at below cost or requires subsidy from other services. We suspect, but cannot prove, because of the failure of DARS opponents to provide data solicited by the Commission, that long run equilibrium in small market radio will result in firms specializing in formats heavily weighted by "local" or "community" content. Consumer welfare may actually be improved by the availability of such stations.

predicted impact on radio station viability."[52] The letter reporting the survey results utterly fails that simple test.

Much of the evidence reported by NAB is an artifact of the general economic quandary of rural America. It may be that market forces will reduce the number of radio stations in small communities well before the introduction of DARS. Forces impelling consolidation in small communities of banking, schools, post offices, general retailing, automobile dealerships and even churches have been widely observed and analyzed. Small town radio is not independent of these larger economic forces and Commission action with respect to DARS cannot hold these communities and their radio stations secure from these larger forces.[53]

On the basis of the evidence presented here, there is no basis for understanding why, or what impact DARS might have in rural areas. The NAB conjectures are not the result of analysis, but are strictly determined by a single supposition and some elementary arithmetic. Thus, the NAB prediction of economic harm to small market radio is an NAB assumption -- no more, no less.

More importantly, perhaps, the NAB analysis ignores the substantial prospect for new DARS-based programming in rural areas made possible by aggregating small numbers of potential (small market) listeners for niche programming over many small markets nationwide, and thereby making available programming that cannot be justified on an individual market-by-individual market basis.

V. Impact of DARS on Programming and Program Diversity

DARS opponents take every available opportunities to urge the Commission that the introduction of new competition from DARS will reduce program diversity, particularly of programming of a "local" or "community" nature. The Commission is

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[52] DARS NPRM, p. 5.

[53] It is also worth pointing out communities of the type and size selected by the NAB for analyses comprise only a very small part, albeit an important part, of the nations' total population and radio audience. To the extent that there are problems unique to small town radio, it is not in the larger public interest for the Commission to strip the rest of the Nation's consumers of highly valued entertainment options as a means of protecting the very small percentage of the nations citizens who live in these areas. If the Commission should find, counter to all indications in the record of this proceeding, that small town radio stations are worthy of special protections, the Commission should identify and explore measures less draconian than stripping consumers nationwide of the options to choose and the values conferred by new entertainment technologies. Faced with similar arguments about harm to rural areas from competition in the telephone industry, the Commission has set about fashioning other remedies that address rural problems directly, while pushing forward with pro-competition policies more generally.

clearly concerned for it asked a variety of specific questions addressing and soliciting comment on the amount of programming now available in different markets; the incentives broadcasters have to provide such programming; how DARS would influence such incentives; what are the risks of reduced programming in different areas; and, several related questions. Pointedly, the Commission specifically asked: "How profitable is local programming?"[54]

But for the self-serving declarations of interested parties, there is very little in the record to indicate the effects of DARS on the programming choices of incumbent broadcast stations.

In the very first instance, the introduction of DARS will increase program choices of consumers. There is no disputing that basic fact. Thus, in absence of evidence to the contrary, and nonesuch has been submitted in this proceeding, it is quite likely that DARS will on balance increase consumer choice.

There is some indirect support for the proposition that DARS will increase such choice. First of all, there has already been a market test of the effects of digital audio services and no adverse impacts have been reported. According to materials cited by the NAB, there are already 25 million subscribers to Digital Audio Services provided by cable television operators. Surely, if an adverse impact might reasonably be expected from digital radio, or if any such impact had already been realized, we would be so informed in this proceeding. There is no better market test or market data available. Yet, the strongest statement reported by NAB -- from a study it funded to determine the impact of cable radio on in-home radio and music listening -- was that almost two thirds of Virginia cable audio subscribers report listening to terrestrial in the home either "a great deal" or at least "'somewhat less" [sic].[55]

The apparent lack of adverse impacts of twenty-five million cable digital audio subscribers on local broadcaster revenue, cash flow, earnings, or programming is very powerful testimony to the proposition that the likely effect of DARS is being grossly exaggerated by broadcasters. It remains to be explained why DARS is such a threat in a marketplace that has apparently yielded subscribers in more than a quarter of the nation's households with no apparent adverse effect -- indeed, no effect worthy

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[54] DARS NPRM, p. 7. There is nothing in opponents' comments directed to responding to this critical question. This is a critical omission, for without such detailed information about the structure of cost and revenue for different classes of services, it is literally impossible to verify the claim that "local" or "community" programming services are being subsidized by others, and that competition from DARS will diminish that support to the detriment of "localism". Thus, the contention simply cannot be verified. See discussion and accompanying notes in "Darby Radio Analysis", p. 24.

[55] "NAB Audience Diversion", p. 3.

of mention by DARS opponents.

One final point may help understanding why an adverse impact of DARS on local programming has been widely and vigorously asserted, but never observed or otherwise documented. The theory implicit in assertions that DARS will reduce programming of a community or local nature is that such programming is provided at less than cost and subsidized by other program services that generate revenues in excess of cost. To verify the theory directly, it would be necessary to disaggregate both revenues and costs and to assign each to different types of programming -- in particular, "local programming" versus all other types of programming. Only then could the theory be verified. While the Commission specifically solicited such information, it was not forthcoming. Thus, we are left to weigh the assertions of likely harm from DARS opponents against our observations of the apparently negligible impact of much wider household penetration of cable digital audio services.

Local programming appears historically to have been one of the small market broadcasters most potent competitive weapons and one which has been frequently utilized to build loyalties among listeners and local advertisers alike.

VI. Conclusion

The Commission has spelled out in considerable depth and breadth its evidentiary requirements for broadcasters to meet their burden of proving that the Commission has the authority to override its statutory obligation to "encourage the provision of new technologies and services to the public."

In eleven paragraphs in the Notice of Proposed Rulemaking respecting digital audio radio services (DARS), the Commission requested extensive data and specified clearly how it should be organized and presented; it prescribed methods of analysis; it identified various components of the public's interest and guided respondents toward analysis of specific types of impacts; and, the Commission otherwise spelled out a clear and consistent system of data, studies and analyses that DARS opponents must submit if they were to meet their burden of persuading the Commission that the timely and unencumbered introduction of DARs is counter to the public interest.

This paper reviews the principal studies of an economic and financial nature filed by radio industry; analyzes the various models and analyses in the context of the Commission's directions; and, evaluates the validity of forecast impacts and the overall probative value of the study results as they pertain to the Commission's definitions of the public interest.

DARS' opponents have failed the Commission's test. The package of studies and analyses submitted by radio broadcasting interests in response to the

Commission's solicitation neither complies with the clear admonitions and directions in the Notice, nor does it meet the statutory burden required for the Commission to delay any further granting DARS applicants the licenses required for timely and unencumbered opportunity to provide service to the public.